

CLAIMS

We claim:

1. An antenna device comprising:
5 a conducting base;
an elongate conducting element electromagnetically coupled to and extending from the conducting base;
and
a parasitic conductor electrically connected to and
10 extending from the conducting base, wherein the conducting element, the parasitic conductor and the conducting base are mutually configured to provide conducting surfaces in which RF electrical currents can flow in a plurality of frequency bands to
15 provide substantially omnidirectional radiation patterns in two mutually orthogonal planes.
2. An antenna device as claimed in claim 1 wherein
20 the conducting element, the parasitic conductor and the conducting base are mutually configured to provide radiation patterns having a radiation polarization component substantially the same.
3. An antenna device as claimed in claim 1 further
25 comprising an insulating substrate, wherein the conducting element and the parasitic conductor are provided on opposite surfaces of the insulating substrate.

4. An antenna device as claimed in claim 3 wherein the substrate comprises a substantially planar insulating board and the conducting element and the parasitic conductor are deposited on the surfaces of the board as shaped metallic strips.
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5. An antenna device as claimed in claim 1 wherein the conducting element and the parasitic conductor have lengths which in operation provide the conducting element with an electrical length about twice that of the parasitic conductor.
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6. An antenna device as claimed in claim 5 wherein the conducting element comprises an elongate strip having a first portion extending along a first axis and the parasitic element comprises a shaped strip extending along the first axis toward the conducting base.
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7. An antenna device as claimed in claim 6 wherein the conducting element also has a second portion extending along a second axis to provide an angled bend between the first and second portions.
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8. An antenna device as claimed in claim 7 wherein the angled bend of the conducting element is substantially right angled.
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9. An antenna device as claimed in claim 1 wherein the conducting element comprises a microstrip having a plurality of portions having different widths.
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10. An antenna device as claimed in claim 8 wherein the conducting element comprises a microstrip having a plurality of portions having different widths.
- 5 11. An antenna device as claimed in claim 10 wherein the conducting element has a portion of greatest width at a free end of the conducting element distant from the base.
- 10 12. An antenna device as claimed in claim 4 wherein the parasitic conductor comprises a strip having a shape including on a first side an edge having a curved recess and on a second side an edge sloping toward the first side.
- 15 13. An antenna device as claimed in claim 1 wherein the base comprises a conducting block and the conducting element and the parasitic conductor extend from the block.
- 20 14. An antenna device according to claim 13 wherein the conducting element and the parasitic conductor extend from the block at a corner region of the block.
- 25 15. An antenna device as claimed in claim 13 wherein the conducting block has a main face substantially parallel with the conducting element and the parasitic element.

16. An antenna device as claimed in claim 1 wherein
the conducting element and the parasitic element are
mutually configured to provide in operation a
current flow in the parasitic element in opposition
5 to a current flow in the conducting element.

17. An antenna device as claimed in claim 15
wherein the conducting element and the parasitic
element are mutually configured to provide in
10 operation a current flow in the parasitic element
in opposition to a current flow in the conducting
element.

18. An antenna device as claimed in claim 13
15 wherein:

the device includes a substantially planar
insulating board and the conducting element and the
parasitic conductor are deposited on opposite
surfaces of the board as shaped metallic
20 microstrips;

the conducting element comprises an elongate
microstrip having a first portion extending away
from the block along a first axis, a second portion
extending along a second axis perpendicular to the
25 first axis and a right angled bend between the first
and second portions; and

the parasitic element comprises a shaped strip
extending away from the block along the first axis
and has a shape including on a first side an edge
30 having a curved recess and on a second side an edge
sloping toward the first side.

19. An antenna device as claimed in claim 18
wherein the parasitic conductor includes a tab which
extends adjacent to a surface of the block.
- 5 20. An antenna device as claimed in claim 19
wherein the tab is secured to the block to provide
electrical contact with the block.
- 10 21. An antenna device as claimed in claim 1
wherein the conducting base has a major surface and
the antenna device further comprises at least one
further conducting element electrically connected
to the base and having a surface substantially
orthogonal to the major surface of the base.
- 15 22. An antenna device as claimed in claim 21
wherein the at least one further conducting element
comprises a platelet having a shape which
approximates to a D shape having a longest dimension
20 in a plane substantially parallel with the major
surface of the base.

23. A communications handset including an antenna device, the antenna device including a conducting base, an elongate conducting element
5 electromagnetically coupled to and extending from the conducting base, and a parasitic conductor electrically connected to and extending from the conducting base, wherein the conducting element, the parasitic conductor and the conducting base are
10 mutually configured to provide conducting surfaces in which electrical currents can flow at radio frequency (RF) in a plurality of frequency bands to provide omnidirectional radiation patterns in two mutually orthogonal planes for same polarization
15 signal.

24. A handset as claimed in claim 23 wherein the handset is operable in a GPRS communication system.

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